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EXAMINER

VANORE, DAVID A

ART UNIT PAPER NUMBER

2881

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,269

Applicant(s)

VAN BERKEL, GARY J.

Examiner

David A Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-21 and 23-41 is/are rejected.
- 7) ☒ Claim(s) 2, 5, 9, 22, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the emitter recited in claim 2, the feedback and control system for modifying at least one dimension of a flow channel recited in claim 9, the nebulizer of claim 5, the voltage divider of claim 22, the mass spectrometer of claim 30, and the electrochemical cell of claim 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-9, 23, 35, and 37-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification fails to disclose that which is claimed. Missing from the specification is the switching network, adequate description in the specification as to how one of ordinary skill would dynamically switch electrical

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potentials between electrodes and on what parameters this dynamic operation is performed, and the means and method steps of clearly articulating a means for causing a force to be applied to the flow channel such that the physical dimensions of the channel are altered. No new matter may be entered.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15, 16, 20, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7-9 and 37-40 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the means for causing a physical modification of the flow channel and fluid height and the method step of actuating a means for

Claim 15 recites the limitation "electrode support" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 16, 20, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. Regarding claim 21, the language of the claim discloses nearly any application where a liquid is decomposed into a spray, hence the omnibus type rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 14, 17-19, 21, 26-34, and 36 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Smith et al.

Smith et al. teaches a mass spectrometer and associated method of use comprising the following:

1. A high voltage electrode chamber having a fluid inlet and outlet (Fig. 2), at least one electrode having an exposed surface for producing ions (Item 40 Col. 6 Line 65-Col. 7 Line 14), a flow channel (Fig. 13, gap between electrodes (40)) for passing a fluid (36) over the electrodes, the flow channel having a length greater than the height, a capping member (Fig. 3 Item 50) comprising an electrode (Note Fig. 2A, 3), a planar electrode support means (142) where the electrodes are disposed therein and the flow channel is disposed between the capping means and the electrode support means, an orifice plate for receiving gas phase ions (26), an ion counting means in the form of a detector (claim 18, Item 26), and a reference electrode (14), as recited in claims 1, 6, 14, 19, 26-33.
2. Since the Applicant makes no reference in the specification as to a novel function regarding the emitter recited in claim 2, Examiner assumes that the emitter claimed is a conventional emission means. As such, Smith et al. teaches an emission means in the

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form of capillary (20) which is nonconductive (Col. 5 Lines 59-68) as recited in claims 2 and 4.

3. An auxillary electrode remotely located from said chamber present in at least the high voltage power supply (24) as recited in claim 3.

4. Regarding claim 5, the emission means of Smith et al. is a nebulizer, as it serves to nebulize an eluent fluid compound and cause the formation of a plume of gas phase ions (Fig. 7).

5. Regarding claims 17 and 18, Smith et al. teaches a further stainless steel electrode (120) disposed in the electrospray device supported by electrode support means (142) and a further means for supplying potentials independently to electrodes 40 and 120 (Col. 17 Lines 10-44).

6. Regarding claims 21 and 36, Smith et al. teaches that the capping means is not attached to power supply 24, but electrode 40 is, therefore, a potential difference is created between the two electrodes.

7. Regarding claim 34, Smith et al. teaches a device which produces gas phase ions (Col. 10 Lines 46-63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al.

Smith et al. teaches all limitation on which claims 10-12 depend.

Smith et al. fails to teach a ratio of the length of a flow channel, as recited in claim 1, to the height of the flow channel having values corresponding to 10, 100, and 1000.

Adjusting the ratio of the length to the height of the flow channel is an adjustment of the size of the elements of the device of Smith et al. as cited above. Alteration of the ratio of height to length to correspond to the claimed values could be achieved by adjusting the overall length of the flow channel. It is not readily apparent, given the disclosure of the Applicant's invention that such a resizing of these taught elements produces a new or unexpected result.

Modifying the device of Smith et al. to have a flow channel with a length to height ratio of 10, 100, or 1000 would be achieved by selecting a flow channel of desired length without changing the height of the flow channel.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to resize the length of the flow channel to achieve a desired length to height ratio because it has been held that the resizing of essential elements in a device is an obvious alteration of a device provided that no new or unexpected result is achieved.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al.

Smith et al. teaches all the limitations of the claims upon which claims 24 and 25 depend as cited above.

Smith et al. fails to disclose an electrode surface which is planar and a capping member which is planar.

While Smith et al. discloses a plurality of electrodes and the capping member recited in these claims, the electrode and capping member are tubular because the electrospray device of Smith et al. is tubular. Adjusting the shape of the electrodes and capping member of Smith et al. constitutes a change of shape of a taught and essential element of Smith et al.

Modifying Smith et al. to have planar electrodes and a planar capping member is an adjustment of the shape of an essential element of Smith et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the shape of the electrodes and capping member of Smith et al. because it has been held that a modification of an essential elements shape is an obvious step so long as no new and unexpected result is achieved by such a modification. Given the disclosure and claims of the Applicant, no such new and unexpected result has been achieved by providing planar electrodes and a planar capping member.

Allowable Subject Matter

Claims 13 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach or suggest a capping means on the end of the electrospray device recited in claim 1 where the capping means is composed of a chemically resistant polymer material. Smith et al. teaches a capping means made of gold, which is chemically resistant. Gold, however, is not a polymer and Smith et al. does not provide a motivation to substitute the chemically resistant metallic capping means with a polymeric capping means. Since the other prior art of record is also silent as to supplying a motivation for substituting a polymer capping means for the metallic capping means of Smith et al, claim 13 is indicated as being allowable.

Furhter , there is no teaching or suggestion in the prior art to utilize a voltage divider as a means to apply a potential difference between the electrode means and a capping means as recited in claim 22.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Vanore whose telephone number is 703-306-0246. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on 703-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

dav
May 23, 2003



JOHN R. LEE
SUPERVISORY PATENT EXAMINER
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